SUMMARY OF OFFICE ACTION

DETAILED ACTION

Drawings

1. The Examiner states: "Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance."

Claim Rejections - 35 USC § 103

2. The Examiner states: "Claims 1, 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA (Applicant Admitted Prior Art) in view of Fisher et al (US 6215214). As for claim 1, AAPA teaches (in Figs. 1-2) for a turbine generator or pump having main bearings separated by a span of shaft and a thrust equahzing mechanism adjacent one (6) of said main beatings. AAPA, however, failed to teach or suggest an improvement comprising a stationary spacer interposed between the thrust equalizing mechanism and its adjacent main bearing to reduce the span between said main bearings. In the same field of endeavor, Fisher teaches (in Fig. 5) a stationary spacer (268) interposed between the thrust equalizing mechanism (258) and its adjacent main bearing (216) to reduce the span (256) between said main bearings (216, 218). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Fisher with that of AAPA for preventing deflection of rotor shaft during heavy side loading. (cal. 2, line 29-34).

As for claim 5, AAPA teaches (in Figs. 1-2) for a turbine generator or pump having main bearings separated by a span of shaft (4) and a thrust equalizing mechanism which includes a stationary thrust plate (8) adjacent one of the main beatings (6) and a variable orifice (20) defined between the thrust plate (8) and a throttle plate (10) affixed to the shaft (4). AAPA, however, failed to teach or suggest an improvement comprising a stationary length compensator interposed between the thrust plate and its adjacent main bearing to space said adjacent main bearing from the thrust plate in order to reduce the span between said main bearings. In the same field of endeavor, Fisher teaches (in Fig. 5) a stationary length compensator (268) interposed between the thrust plate (260) and its adjacent main bearing (216) to space said adjacent main bearing from the thrust plate in order to reduce the span (256) between said main bearings (216, 218). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Fisher with that of AAPA for preventing deflection of rotor shaft during heavy side loading. (col. 2, line 29-34).

As for claim 9, AAPA teaches (in Figs. 1-2) for a turbine generator or pump having main bearings separated by a span of shaft and a thrust equalizing mechanism which includes a stationary thrust plate (8) adjacent one of the main bearings (6). AAPA, however, failed to teach or suggest an improvement comprising stationary means interposed between the thrust plate and its adjacent main bearing to space said adjacent main bearing from the thrust plate in order to reduce the span between said main bearings. In the same field of endeavor, Fisher teaches (in Fig. 5) stationary means (268) interposed between the thrust plate (260) and its adjacent main bearing (216) to space said adjacent main bearing from the thrust plate in order to reduce the span (256) between said main bearings (216, 218). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Fisher with that of AAPA for preventing deflection of rotor shaft during heavy side loading. (col. 2, line 29-34)."

3. The Examiner states: "Claims 2-4, 6-8 and 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA (Applicant Admitted Prior Ad) in view of Fisher et al (US 6215214) and in further view of Agnes et al (US 6570284) and Brown (US 4729160).

As for claim 2, AAPA and Fisher teach the claimed invention as applied to claim 1 above. The references, however, failed to teach the spacer is composed of material that shrinks less than the shaft of the generator. In the same field of endeavor, Agnes teaches (in Fig. 7) a spacer (54) is composed of material (fiberglass) that shrinks less than the shaft (50) of the motor. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teaching of Agnes with that of AAPA for insulation. Agnes, however, failed to teach the shaft is for generator and the shaft material shrinks not less than the fiberglass spacer. In the same field of endeavor, Brown teaches fiberglass less than the coefficient of thermal expansion for the stainless steel. (col. 1, line 63- col. 2, line 25) Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine teachings of Brown to AAPA, Fisher and Anges for less dimensional affects to the assembly.

As for claims 6 and 10, except claim dependency, Claims contain the same limitation as claim 2 and is rejected for the same reason set forth in connection with the rejection of claim 2 above.

As for claim 3, AAPA and Fisher teach the claimed invention as applied to claim I above. AAPA and Fisher however failed to teach the height of the spacer is selected according to desired thrust equalizing mechanism operating parameters over a temperature range. In the same field of endeavor, Agnes teaches (in Fig. 7) a spacer (54) is selected for fiberglass and therefore it has operating parameters over a temperature range as the maximum temperature of fiberglass (at least 1550 degree F) typically exceeds the design temperature of generator/pump (typically 180 degree C or less). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made for reliability of the generator/pump

As for claims 4, 7, 8, 11 and 12, except claim dependency, Claims contain the same limitation as

claim 3 and is rejected for the same reason set forth in connection with the rejection of claim 3 above."

4. The Examiner states: "Claim 3 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA (Applicant Admitted Prior Art) in view of Fisher et al (US 6215214). As for claim 3, AAPA and Fisher teach the claimed invention as applied to claim 1 above. AAPA and Fisher disclose the claimed invention except for height of the spacer. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select a feasible value for operation, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)."

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REPLACEMENT DRAWINGS

Applicant submits herein REPLACEMENT SHEET 1 OF 2 AND 2 OF 2 in compliance with 37 CFR 1.121 (d) to overcome objection on drawings as filed.

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